

CLAIMS

1. A fan and slip ring assembly for an electric machine, comprising:

a) a rotor for said electric machine, said rotor comprising a rotatable shaft along a longitudinal axis and a field coil having a pair of coil leads;

b) a fan having a central aperture through which the shaft passes, the pair of coil leads passing through a pair of openings in said fan;

c) a pair of slip rings longitudinally spaced from said fan, each slip ring having a coupling terminal, said slip rings being secured to said shaft, one of said coupling terminals being secured to one of said pair of coil leads of said coil, and the other one of said coupling terminals being secured to the other one of said pair of coil leads; and

d) a pair of securement caps for securing said pair of coil leads and said pair of coupling terminals to said fan.

2. A rotor for an electrical machine, comprising:

a) a shaft defining an axis of rotation of said rotor;

b) first and second pole pieces affixed to said shaft for rotation therewith and together defining an interior cavity;

c) a slip ring affixed to said shaft for rotation therewith;

d) a field-generating coil disposed within said interior cavity, said field-generating coil comprising a plurality of turns of electrical wire, said electrical wire further having a coil lead extending to and being electrically coupled to a lead of said slip ring, said coil lead and said lead of said slip ring defining at a point of securement;

e) a fan affixed to either said first or second pole piece; and

f) a retaining member, said retaining member securing said point of securement to said fan.

3. A retaining member for securing an electrical connection of an alternator, comprising:

a) a receiving area being configured and dimensioned to cover said electrical connection when said retaining member is secured to a surface of a fan of said alternator.

4. The retaining member as in claim 3, further comprising:

a) a pair of end portions depending outwardly from a pair of leg portions, said pair of leg portions being secured to each other at one end, and said pair of leg portions defining said receiving area, said end portions being secured to said surface of said fan.

5. The retaining member as in claim 4, wherein said pair of end portions each have a heat staking portion.

6. The retaining member as in claim 5, wherein said retaining member is constructed out of a polymer.

7. The retaining member as in claim 6, wherein said fan is constructed out of a polymer.

8. The retaining member as in claim 3, wherein said retaining member is manufactured by an injection molding process.

9. The retaining member as in claim 4, wherein said leg portions define a triangular receiving area.

10. The rotor as in claim 2, wherein said slip ring is a replacement for an original slip ring removed from said electric machine, and

said retaining member securing said point of securement to said fan after said slip ring is secured to said rotor.

11. The fan and slip ring assembly as in claim 1, wherein said slip ring assembly is a replacement for an original slip ring assembly removed from said electric machine and said securement caps secure said pair of coil leads and said pair of coupling terminals to said fan after said slip ring assembly
5 is secured to said rotor.

12. The rotor as in claim 10, wherein said retaining member secures said point of securement to a portion of said fan, said portion being the location of the securement of a lead of said original slip ring.

13. The rotor as in claim 2, wherein said field-generating coil includes a pair of coil leads extending to and being electrically coupled to a pair of leads of a pair of said slip rings to define a pair of points of securement, said pair of points of securement being secured to said fan by a pair of retaining
5 members.

14. The fan and slip ring assembly as in claim 1, wherein said pair of securement caps comprise: a receiving area being configured and dimensioned to cover said pair of coil leads and said pair of coupling terminals when said retaining caps are secured to a surface of said fan.

15. The fan and slip ring assembly as in claim 14, wherein said pair of retaining caps further comprise:
a) a pair of end portions depending outwardly from a pair of leg portions, said pair of leg portions being secured to each other at one end, and
5 said pair of leg portions defining said receiving area, said end portions being secured to said surface of said fan.

16. The fan and slip ring assembly as in claim 15, wherein said pair of end portions each have a heat staking portion.

17. The fan and slip ring assembly as in claim 11, wherein said pair of securement caps secure said pair of coil leads and said pair of coupling terminals to a portion of said fan, said portion being the location of the securement of a lead of said original slip ring.

18. A method for securing electrical connections of a rebuilt alternator, comprising:

securing a slip ring lead to a coil lead to define an electrical connection;

5 positioning said electrical connection proximate to a surface of a fan of said rebuilt alternator; and

securing a retaining member to said fan, said retaining member defining a receiving area, said receiving area being configured, dimensioned, and positioned to cover and retain said electrical connection.

19. The method as in claim 18, wherein said fan and said retaining member are manufactured out of plastic, and said retaining member is heat-staked to said fan.